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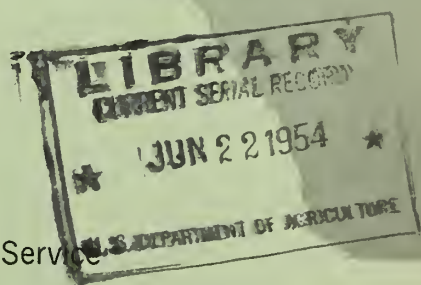
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FEDERAL - STATE COOPERATIVE  
SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for  
**Arizona**

By  
Division of Irrigation, Soil Conservation Service  
United States Department of Agriculture



Data included in this report were obtained by the agency named above in cooperation with the Federal, State and local organizations listed on the last page of this report.

As of  
JAN. 15, 1952

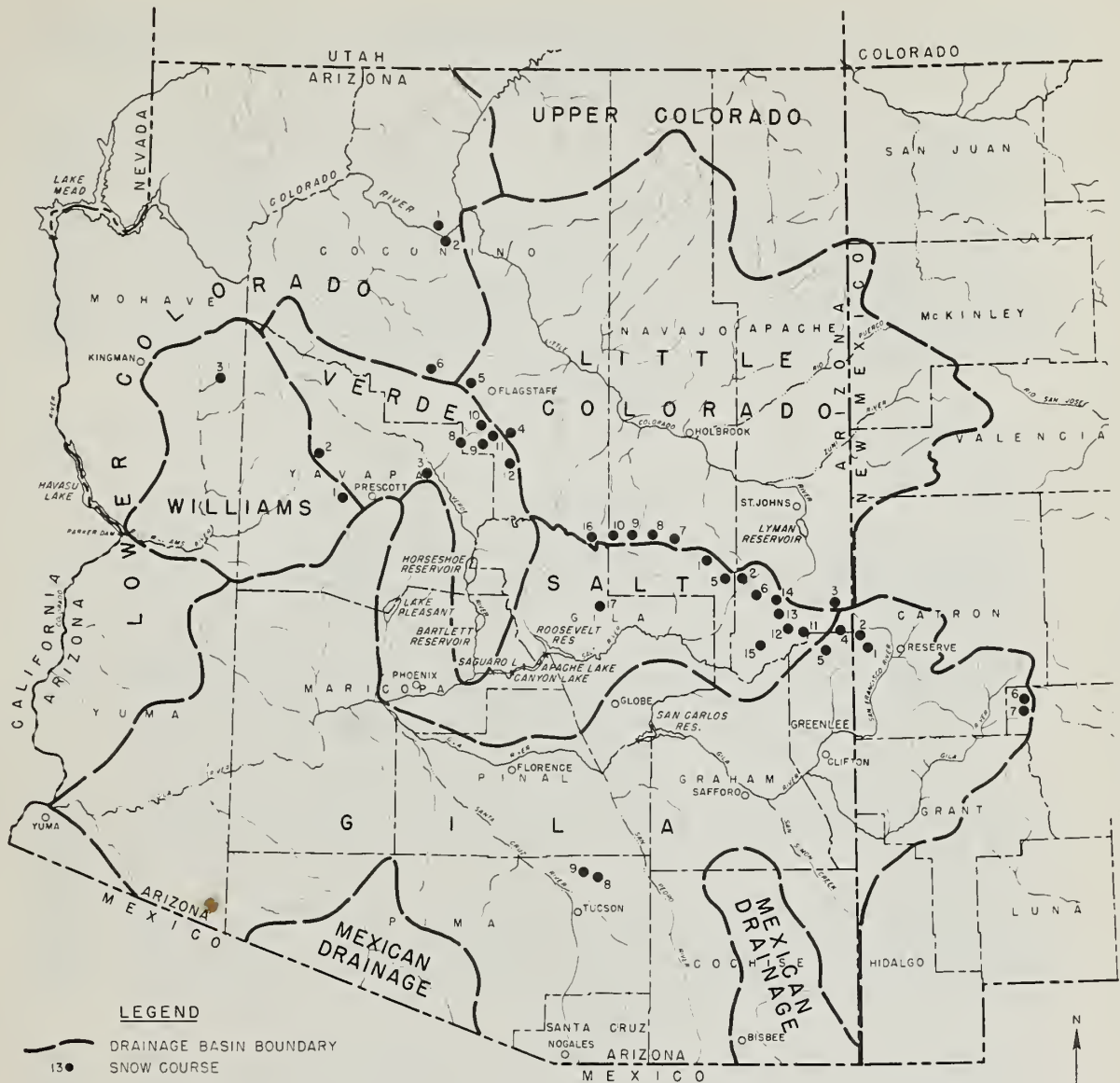


FEDERAL-STATE COOPERATIVE  
SNOW SURVEYS AND IRRIGATION WATER FORECASTS  
FOR  
ARIZONA

Report Prepared  
by  
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Soil Conservation Service  
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# INDEX TO SNOW COURSES

NUMBER	NAME	ELEVATION
<u>LITTLE COLORADO RIVER</u>		
1.	Forest Dale . . . . .	6,000
2.	McMury . . . . .	7,200
3.	Nutriso . . . . .	8,500
4.	Mormon Lake . . . . .	7,350
5.	Fort Valley . . . . .	7,350
7.	Gentry . . . . .	7,600
8.	Heber . . . . .	7,600
9.	Canyon Creek . . . . .	7,500
10.	Elk . . . . .	7,600
11.	Mormon Mountain . . . . .	7,500
12.	Happy Jack . . . . .	7,630
16.	Woods Canyon . . . . .	7,640
<u>WILLIAMS RIVER</u>		
1.	Iron Springs . . . . .	6,200
2.	Camp Wood . . . . .	5,700
3.	Willow Ranch . . . . .	5,000
<u>GILA RIVER</u>		
1.	Frisco Divide (N.M.) . . . . .	8,000
2.	State Line (N.M.) . . . . .	8,000
3.	Nutriso . . . . .	8,500
4.	Coronado Trail . . . . .	8,000
5.	Beaver Head . . . . .	8,000
6.	Taylor Creek (N.M.) . . . . .	7,850
7.	Inman (N.M.) . . . . .	7,800
8.	Rose Canyon . . . . .	7,300
9.	Bear Wallow . . . . .	8,100
<u>VERDE RIVER</u>		
1.	Iron Springs . . . . .	6,200
2.	Camp Wood . . . . .	5,700
3.	Mingus Mountain . . . . .	7,100
4.	Morman Lake . . . . .	7,350
5.	Fort Valley . . . . .	7,350
6.	Chalender . . . . .	7,100
8.	Munds Park . . . . .	6,500
9.	Casner Park . . . . .	6,930
10.	Antelope Park . . . . .	7,300
11.	Mormon Mountain . . . . .	7,500
12.	Happy Jack . . . . .	7,630
<u>SALT RIVER</u>		
1.	Forest Dale . . . . .	6,000
2.	McMury . . . . .	7,200
3.	Nutriso . . . . .	8,500
4.	Coronado Trail . . . . .	8,000
5.	Milk Ranch . . . . .	7,000
6.	McKay . . . . .	8,250
7.	Gentry . . . . .	7,600
8.	Heber . . . . .	7,600
9.	Canyon Creek . . . . .	7,500
10.	Elk . . . . .	7,600
11.	Big Lake Knoll . . . . .	8,800
12.	Maverick Fork . . . . .	9,050
13.	Baldy . . . . .	9,000
14.	Ft. Apache . . . . .	9,160
15.	Pacheta . . . . .	7,800
16.	Woods Canyon . . . . .	7,640
17.	Workman Creek . . . . .	6,900
<u>LOWER COLORADO RIVER</u>		
1.	Bright Angel . . . . .	8,400
2.	Grand Canyon . . . . .	7,500
5.	Fort Valley . . . . .	7,350
6.	Chalender . . . . .	7,100



## WATER SUPPLY OUTLOOK

Arizona  
January 15, 1952

\* \* \* \* \*  
\* Arizona's potential reservoir storage in the form \*  
\* of mountain snows has prospects unequaled in the \*  
\* past 10 years. Snow-stored water on the principal \*  
\* water sheds range up to 200 per cent of normal. \*  
\* Soil moisture conditions are generally very good in \*  
\* the mountain areas. Reservoir storage in the State's \*  
\* major reservoirs is now over 20 per cent of capacity \*  
\* \* \* \* \*

Precipitation: During the fall and early winter months, precipitation above normal has occurred throughout most of the State. Soil moisture conditions are near saturation on all of the watersheds. Warm December and early January rains have taken off most of the low elevation snow.

Snow Cover: The snow-stored water on the Verde River Drainage is about 200 per cent of normal and about seven times what it was last year at this time. Snow depths vary from 6 inches at Mingus Mountain to 3 feet at Mormon Mountain. Dams of ice are filling some of the stream beds all along the east drainage of the Verde. Soil that hasn't yet frozen is like a sponge. Prospects for runoff are good.

Recent rains have removed most of the snow below 7500 feet on the Salt River Drainage. Snow-stored water at the higher elevations is about 150 per cent of normal. Snow depths on Mt. Baldy and around Big Lake vary from 3-4 feet and contain over 12 inches of water. Soil moisture conditions are very good on this drainage. Prospects for runoff are encouraging. If high winds and cold temperatures do not evaporate the present snow cover, good runoff will result.

Snow-stored water on the Gila watershed is above normal. Soil moisture conditions are very good. Snow depths range up to 18 inches at the 8000 foot level. Most of the lower elevation snow has come off with recent rains.



Snow-stored water on the Little Colorado is about 200 per cent of normal. Williams River Drainage has above normal snow-stored water.

The South Rim of the Grand Canyon reports 18 inches of snow and the North Rim has over  $3\frac{1}{2}$  feet.

Runoff: October through December runoff brought about 300,000 acre feet of water into the State's reservoirs. Good runoff is continuing through the first half of January. On one occasion Salt River peaked at 75,000 cubic feet per second

Runoff on the Gila River has been poor but since the first of January about 50,000 acre feet have been added to storage.

Reservoir Storage: On this date, reservoirs of the State are about 20 per cent of capacity. The reservoirs on the Salt River contain about 60 per cent normal storage; the two reservoirs on the Verde are about 300 per cent normal storage. The San Carlos Reservoir on the Gila River is considerably below normal. Carl Pleasant Dam on the Agua Fria River is about 60 per cent of capacity and about seven times normal storage for this date.

Lake Havasu contains about 600,000 acre feet; Lake Mohave 1,580,000; and Lake Mead 17,648,000 acre feet. Lake Mead storage is below average, and Lake Havasu is slightly above average.



TABLE 1

## ARIZONA SNOW SURVEYS JANUARY 15, 1952

LOCATION				SNOW COVER MEASUREMENTS							
Drainage Basin and Snow Course	No.	Sec.	Twp.	Rge.	Elev.	Date of Survey	Snow Depth (Inches)	Water Content(Inches)		Fast Record Av. Water Content (Inches)	
								Same Approximate	Date		Years of Record
						1952	1951	1950			
LITTLE COLORADO RIVER											
Forest Dale	1	2	9N	21E	6000	1/15	T	0	0.0	12	0.9
McNary	2	14	8N	23E	7200	1/15	6.8	2.6	2.4	12	2.3
Nutriosio	3	23	6N	30E	8500	1/14	11.3	2.6	1.8	12	1.9
Mormon Lake	4	13	18N	8E	7350	1/15	18.3	5.8	3.1	5	4.8
Fort Valley	5	22	22N	6E	7350	1/15	23.6	6.4	2.4	5	2.1
Gentry	7	36	11N	15E	7600	No survey			3.0	2	2.3
Heber	8	28	11N	15E	7600	No survey			2.7	2	1.9
Canyon Creek	9	18	11N	15E	7500	No survey			3.4	2	2.3
Elk	10	31	11N	14E	7600	No survey			3.5	2	2.7
Mormon Mt.	11	14	18N	8E	7500	1/15	27.7	9.0	4.6	2	3.7
Happy Jack	12	30	17N	9E	7630	1/15	18.9	6.6	New course		
Average							15.2	4.7	2.7		2.5
GILA RIVER											
Frisco Divide	1	31	6S	20W	8000	1/16	5.8	2.0	1.7	12	1.7
State Line	2	6	6S	21W	8000	1/16	6.3	2.4	1.5	12	2.1
Nutriosio	3	23	6N	30E	8500	1/14	11.3	2.6	1.8	12	1.9
Coronado Trail	4	26	5N	30E	8000	1/14	13.0	3.6	2.0	12	2.5
Beaver Head	5	13	4N	30E	8000	No report			2.8	11	2.4
Taylor Creek	6	20	10S	10W	7850	No report			1.1	8	0.8
Inman	7	6	11S	10W	7800	No report			1.3	6	0.6
Rose Canyon	8	15	12S	16E	7300	1/15	0	0	2.3	4	0.9
Bear Wallow	9	6	12S	16E	8100	1/15	0	0	5.7	4	3.5
Average							6.1	1.8	2.2		1.8





TABLE 1

## ARIZONA SNOW SURVEYS JANUARY 15, 1952

LOCATION						SNOW COVER MEASUREMENTS						
Drainage Basin and Snow Course	No.	Sec.	Twp.	Rge.	Elev.	Date of Survey	Snow Depth (Inches)	Water Content(Inches)			Past Record	
								Same	Approximate	Date Years of Record		
WILLIAMS RIVER?												
Iron Springs	1	22	14N	3W	6200	1/15	5.2	2.5	T	T	6	0.2
Camp Wood	2	3	16N	6W	5700	1/15	2.7	1.0	1.5	0.8	6	1.2
Willow Ranch	3	16	21N	11W	5000	1/15	5.0	0.8	2.8	0	6	1.8
Average							4.3	1.4	1.4	0.3		1.1
SALT RIVER												
Forest Dale	1	2	9N	21E	6000	1/15	T	0	0.8	0	12	0.9
McNary	2	14	8N	23E	7200	1/15	6.8	2.6	2.2	2.4	12	2.3
Nutrioso	3	23	6N	30E	8500	1/14	11.3	2.6	0.3	1.8	12	1.9
Coronado Trail	4	26	5N	30E	8000	1/14	13.0	3.6	0.6	2.0	12	2.5
Milk Ranch	5	28	8N	23E	7000	1/15	T	0	1.8	1.8	11	1.4
Gentry	7	36	11N	15E	7600	No survey			1.5	3.0	2	2.3
Heber	8	28	11N	15E	7600	No survey			1.1	2.7	2	1.9
Canyon Creek	9	18	11N	15E	7500	No survey			1.1	3.4	2	2.3
Elk	10	31	11N	14E	7600	No survey			1.8	3.5	2	2.7
Maverick Fork	12	13	6N	27E	9050	1/16	40.8	12.1	1.2	4.3	2	2.8
Baldy	13	28	7N	27E	9000	1/16	31.6	9.1	1.6	2.9	2	2.3
Ft. Apache	14	18	7N	27E	9000	1/16	34.0	9.5	1.9	2.5	2	2.2
Pacheta	15				7800	1/15	18.0	6.7	1.7	3.0	2	2.4
Workman Creek	17	33	6N	14E	5860	1/11	7.5	3.1	New Course			
Average							16.3	4.9	1.3	2.7		2.2



TABLE 1

## ARIZONA SNOW SURVEYS JANUARY 15, 1952

LOCATION				SNOW COVER MEASUREMENTS				
				Date of Survey	Water Content(Inches)		Snow Depth (Inches)	Past Record Years of Record
Drainage Basin and Snow Course	No.	Sec.	Twp.	Rge.	Elev.	1952	1951	1950
						Same Approximate	Date	Avg. Water Content (Inches)
VERDE RIVER								
Iron Springs	1	22	14N	3W	6200	2.5	T	6
Camp Wood	2	3	16N	6W	5700	1.0	0.8	6
Mingus Mt.	3	3	15N	2E	7100	1.4	T	5
Mormon Lake	4	13	18N	8E	7350	5.8	0.9	5
Fort Valley	5	22	22N	6E	7350	6.4	T	5
Chalender	6	27	22N	3E	7100	5.6	0.6	5
Munds Park	8	7	18N	7E	6500	2.1	0.9	2
Casner Park	9	19	18N	8E	6930	5.8	1.2	2
Antelope Park	10	29	19N	8E	7300	8.1	1.1	2
Mormon Mt.	11	14	18N	8E	7500	9.0	1.0	2
Happy Jack	12	30	17N	9E	7630	6.6	0.2 New Course	2
Average						15.6	0.7	2.4
						4.9	2.4	2.3
LITTLE COLORADO RIVER								
Bright Angel	1	34	33N	3E	8400	17.2	0.9	4
Grand Canyon	2	21	30N	4E	7500	3.0	1.5	4
Fort Valley	5	22	22N	6E	7350	6.4	T	5
Chalender	6	27	22N	3E	7100	5.6	0.6	5
Average						25.9	1.0	3.7
						8.1	3.7	3.4



TABLE 2

## STATUS OF RESERVOIR STORAGE, January 15, 1952

Basin and Stream	Reservoir	Usable Capa- city (1000 A.F.)	THOUSANDS ACRE FEET IN STORAGE				
			About Jan. 15				10 Yr.Avg.
			1952	1951	1950	1949	1941-1945
Agua Fria	Lake Pleasant	178	104	6	7	1	15
Colorado	Lake Havasu	688	597	620	684	592	552
Colorado	Lake Mohave	1,810	1,580	1,186	--	--	--
Colorado	Lake Mead	27,935	17,648	17,951	19,446	19,489	20,381
Gila	San Carlos	1,285	36	0	90	32	206
Verde	Bartlett	180	73	3	39	34	42
Verde	Horseshoe	143	54	2	2	17	7 <sup>a</sup>
Salt	Roosevelt	1,382	180	3	363	89	536
Salt	Apache	245	161	170	192	101	170
Salt	Canyon	58	48	48	7	12	21
Salt	Saguaro	70	33	38	22	24	13

a - Average for years 1946 through 1950





# List of Snow Surveyors

<u>Snow Course</u>	<u>Surveyor</u>
Forest Dale . . . . .	Waggener, Quintero
McNary. . . . .	Waggener, Quintero
Milk Ranch. . . . .	Waggener, Quintero
Casner Park . . . . .	Goodwin, Greaves, Peterson
Munds Park. . . . .	Goodwin, Greaves, Peterson
Antelope Park . . . . .	Goodwin, Greaves, Peterson
Mormon Mountain . . . . .	Goodwin, Greaves, Peterson
Mormon Lake . . . . .	Goodwin, Greaves, Peterson
Mingus Mountain . . . . .	M. F. Jones
Iron Springs. . . . .	E. Saxby
Camp Wood . . . . .	Mrs. C. C. Merritt
Willow Ranch. . . . .	T. Miller
Grand Canyon. . . . .	Thede, Moore
Bright Angel. . . . .	Hall, Valentine
Fort Valley . . . . .	A. P. Loska
Chalender . . . . .	M. C. Oleson
Bear Wallow . . . . .	Wm. Hughes
Rose Canyon . . . . .	Wm. Hughes
Pacheta . . . . .	F. Phillips
Maverick Fork . . . . .	Goodwin, Peterson
Baldy . . . . .	Goodwin, Peterson
Ft. Apache. . . . .	Goodwin, Peterson
Taylor Creek. . . . .	F. M. Inman
Inman . . . . .	F. M. Inman
Coronado Trail. . . . .	Pfefferle, Casanova
Nutrioso. . . . .	Pfefferle, Casanova
Happy Jack. . . . .	E. Ryberg
Workman Creek . . . . .	C. L. Moore
Beaver Head . . . . .	J. Burke
State Line. . . . .	J. B. Shumate
Frisco Divide . . . . .	J. B. Shumate



The following organizations cooperate in the Arizona snow survey work:

FEDERAL

Department of Agriculture  
Forest Service  
Apache Forest  
Coconino Forest  
Coronado Forest  
Gila Forest  
Kaibab Forest  
Prescott Forest  
Sitgreaves Forest  
Southwestern Forest and Range Experiment  
Station, Fort Valley, Arizona  
Sierra Ancha Experiment Forest Station  
Soil Conservation Service  
Division of Irrigation

Department of Commerce  
Weather Bureau  
Arizona Section

Department of Interior  
Bureau of Reclamation  
Region III  
Geological Survey  
Arizona District  
Indian Service  
Fort Apache Reservation  
National Park Service  
Grand Canyon National Park

Gila Water Commissioner  
Safford, Arizona

IRRIGATION PROJECTS

Salt River Valley Water Users Association,  
Phoenix, Arizona

San Carlos Irrigation and Drainage District,  
Coolidge, Arizona

Southwest Lumber Mills, Inc., McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

Federal - State - Private

COOPERATIVE SNOW SURVEYS

Furnishes the basic data  
necessary for forecasting  
water supply for irrigation,  
domestic and municipal water  
supply, hydro-electric power  
generation, navigation,  
mining and industry.

"WATER IS THE WEST'S GREATEST RESOURCE"